

October 14, 2005

To: John L. Geesman,
Commissioner and Presiding Member
James D. Boyd,
Commissioner and Associate Member,

Cc: California Energy Commission Dockets Unit
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512

Subject: Docket No. 04 IEP 1K

Dear Commissioners Geesman and Boyd:

Please find enclosed the following documents: **CEERT 2005 IEPR Comments** and **CEERT Comments on Draft IEPR Chapter 7: Natural Gas**. They have been submitted electronically and in person to the Energy Commission's Dockets unit as of Friday, October 14th, 2005. Please feel free to contact me if you have any questions.

Sincerely,

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CEERT 2005 IEPR Comments

Introduction

The current state of California's energy market affords the Commission a unique opportunity to outline with urgency the aggressive goals necessary to achieve an energy system that will be sustainable over the long term while remaining economically viable through its construction and implementation.

At that the beginning of this year a barrel of oil was trading on NYMEX at about \$45 per barrel¹, and natural gas cost \$7/MMBtu². In the relatively short time it has taken the Commission staff to draft this year's report, oil has risen above \$60 per barrel and natural gas is now trading around \$13/MMBtu. Certainly the lost production caused by hurricanes Katrina and Rita affected the cost of energy commodities. However, there is a more important point behind our current energy situation. Katrina and Rita did not *cause* the spikes in energy prices and supply constraints, the storms exacerbated an already critical supply situation. CEERT's historical analysis of energy supply data over the past five years clearly shows a looming supply shortfall in both natural gas and oil.³ The present state of California's energy system is a clear illustration of the state's fragility. The major effects on our energy infrastructure caused by storms on the other side of the country can motivate the citizens of California and their government to pursue more reliable, farsighted energy policy that maintains the ability to provide Californians with economically viable energy.

While the cost of both oil and natural gas may fall nominally in the near term, the long term price trend is clear. Oil prices have increased approximately six fold over the past 6 years.⁴ Similarly, natural gas prices have increased five fold over the price five years ago.³ Many fail to recognize that current prices are part of this larger pattern. The evident trend has, for the most part, been flying below the radar of public consciousness. While California's government does have programs in place to address these issues, the public's increased concern over energy should result in a renewed sense of urgency in the implementation of these programs.

California's energy policy needs to support with a greater intensity:

- Increases in energy efficiency across the board from production to consumption;

¹ "NYMEX Crude Oil Futures." US Energy Information Administration, <http://www.eia.doe.gov/neic/historic/hpetroleum2.htm#Gasoline>, 10/6/05

² "US Natural Gas City Gate Price," US Energy Information Administration, <http://www.eia.doe.gov/neic/historic/hngas2.htm#Price>, 10/6/05.

³ Ferguson, Richard. "Risky Diet," Center for Energy Efficiency and Renewable Technologies, 7/8/05.

⁴ "Crude Oil Domestic First Purchase Prices: US real average in 2000 dollars" US Energy Information Administration, <http://www.eia.doe.gov/emeu/aer/txt/ptb0518.html>, 10/6/05.

- More active implementation of the renewable portfolio standard, including distributed generation technologies coupled with a robust transmission system able to handle the growth in renewable generation; and
- Measured and judicious expansion of fossil fuel energy that is both environmentally safe and does not threaten public health.

It is the role of the Commission through its IEPR to tell the Governor and the people of California what is going to be/needs to be done. CEERT supports the policy behind the Loading Order, however we feel that more must be done to achieve the goals set forth in that policy.

Efficiency

Increases in energy efficiency are noted as California's first defense in reducing the severity of energy price spikes and supply constraints. There are a variety of ways to cut energy consumption immediately with new appliance technology, increased building efficiency and more creatively educating people about ways to minimize consumption patterns. At the same time, on the generation end, substantial opportunities exist to increase efficiency in the production of energy. A recent CPUC decision approved \$2 billion over the next three years for energy efficiency purposes to be used by California's investor owned utilities. This is a move in the right direction.

With this report however, the CEC has the opportunity to affect policy on a much broader scope, namely demanding the aggressive implementation of efficiency measures from the municipal utilities and energy service providers that serve major portions of the state's customers. While some munis like SMUD have been proactive in addressing energy efficiency, state policy could increase the implementation and effectiveness of these programs over a very broad area. Because of the numerous and varied governing structures, the Commission can take a leadership role advising the Governor to encourage this type of investment by all energy providers.

Renewable Development

Our second priority in energy procurement is through the continued development of California's substantial renewable resources. Like any form of energy infrastructure they require a longer lead-time before energy needs are addressed. For this reason the Renewable Portfolio Standard has set a timeline for bringing these types of energy technology on line. The goals set forth in the RPS are crucial for maintaining a reliable power supply for the state of California. Renewable energy has inherent values that conventional fossil fuels will never possess. Outside of the initial capital costs, the cost of a resource like wind or solar is constant. Ratepayers' renewable-based electricity bills will not be subject to the politics of the Middle East or the temperament of Mother Nature. This

creates an inherent flaw in assessing the economic advantage of a renewable project over a conventional power plant whose future cost is unknown.

While the renewable developer may know what it will take to build and maintain a wind resource area, it is increasingly difficult to compare that to a natural gas plant when the gas prices fluctuate as they have in recent years. This problem is most clearly evident in the CPUC's difficulty in developing the market price referent. The cost reliability of renewables should be looked at as a major benefit to renewable energy. It is also important to realize that this benefit is long-term. Installing a solar PV system on your roof will cost you more over two years, but over ten years you will have saved money by reduced energy costs. California must aggressively follow this approach on a statewide scale.

Closely related to the economic reliability of renewables is the economic stimulus created by keeping the cost paid for energy within the state. As the prospect of liquefied natural gas (LNG) terminals approaches, California faces the possibility of more of its money going overseas to pay for energy. Conversely renewables are homegrown. The money generated by renewable energy facilities "in California" stays "in California". These facilities contribute to the local tax base and create jobs. This issue will only increase in profile as local governments see the economic opportunities of renewable power.

The renewable energy chapter also fails to mention the possibility of future use of concentrated solar power (CSP). California possesses a massive amount of high quality solar potential especially in the deserts of Southern California. It is primarily the role of the Commission to begin assessing the usefulness of this energy source. The CEC should not ignore this electricity source as the state's demand continues to climb. CSP technology has made great strides recently and is being successfully used in other countries, most notably Spain. Given the state's substantial CSP potential we feel that this technology deserves at least the same consideration as biomass energy.

With the projected rise in home heating costs due to natural gas and heating oil costs, CEERT also sees a renewed potential for solar thermal technology. While much attention has been focused on the electricity potential for solar photovoltaic technology, remains a viable use of solar energy for heating. The CEC should explore the possibility of expanded use for this technology in the construction of new homes. With utility costs rising rapidly this represents a common sense solution home heating demands.

The most obvious benefit of renewable energy is the environmental and public health benefit. This is something that cannot be overstated, yet the draft IEPR notes on page 90:

“Biomass has strategic value as a renewable resource that can help meet the state’s RPS goal while also capturing social, economic and environmental benefits.”

These are characteristics of all renewable technologies and it is highly important to explicitly call attention to these values when discussing the merit of renewable development. This aspect should be greatly emphasized when drafting the final IEPR.

Transmission

As the draft report mentions, the lack of a robust transmission system is responsible for constraints in electricity deliverability and more importantly the accessibility of our state’s most viable renewable energy resources. CEERT strongly agrees with this view and also feels that there are two important policy points that should be amended to expedite the construction of new and more substantial transmission networks. First it should not be the responsibility of the renewable energy developer to finance the new transmission. As the IEPR points out, the current transmission system lacks reliability and all ratepayers will thus benefit from expanding this system.

Second, CEERT agrees with the report’s view that:

“Under the current structure, all existing users of transmission, primarily fossil-fueled generators, are essentially given priority for current transmission capacity while renewable generators are required to upgrade transmission to gain access to the grid. This perspective is difficult to reconcile with the state’s preferred loading order.”
(pages 98-99)

It must be recognized that simply because the RPS exists in statute does not mean that the goals set forth in that policy will be achieved. The lack of transmission to access renewable energy remains a major obstacle in the state’s path towards achieving a strong and reliable renewable energy portfolio. CEERT applauds the Commission’s effort to be a leader in addressing this important issue.

Natural Gas

The current supply constraints surrounding both petroleum fuels and natural gas highlight an inherent flaw in energy systems based on fossil fuels. These finite supplies suffer from increasing scarcity. As this trend continues Californians have seen themselves become more susceptible to supply disruptions and the correlative price increases. For this reason CEERT feels it must be reiterated that California’s current reliance on oil

and natural gas is transitory. The state should continuously work towards an energy system that is dependent on renewable sources.

The siting and construction of LNG terminals that is mindful of both environmental and public health risks may be necessary to accommodate short-term heating and electricity demands and lower prices. However, the Commission must recognize this as a temporary fix. While domestic investment, exploration and drilling have increased, the projected increases in domestic natural gas supplies have not materialized (Figures 1&2).⁵

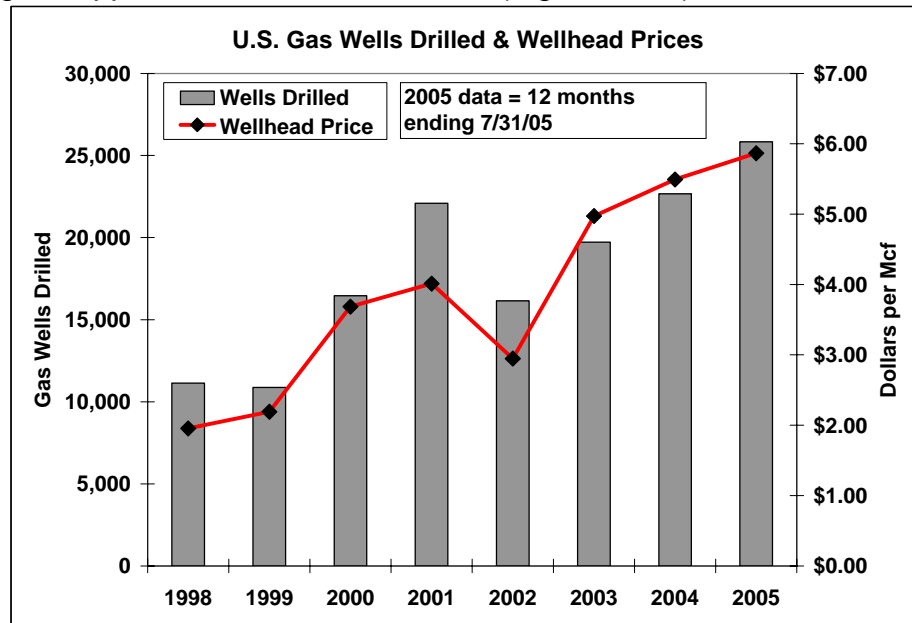


Figure 1 – Gas wells drilled annually and wellhead prices. Source = USEIA.

⁵ Ferguson, Richard. "Risky Diet," Center for Energy Efficiency and Renewable Technologies, 7/8/05.

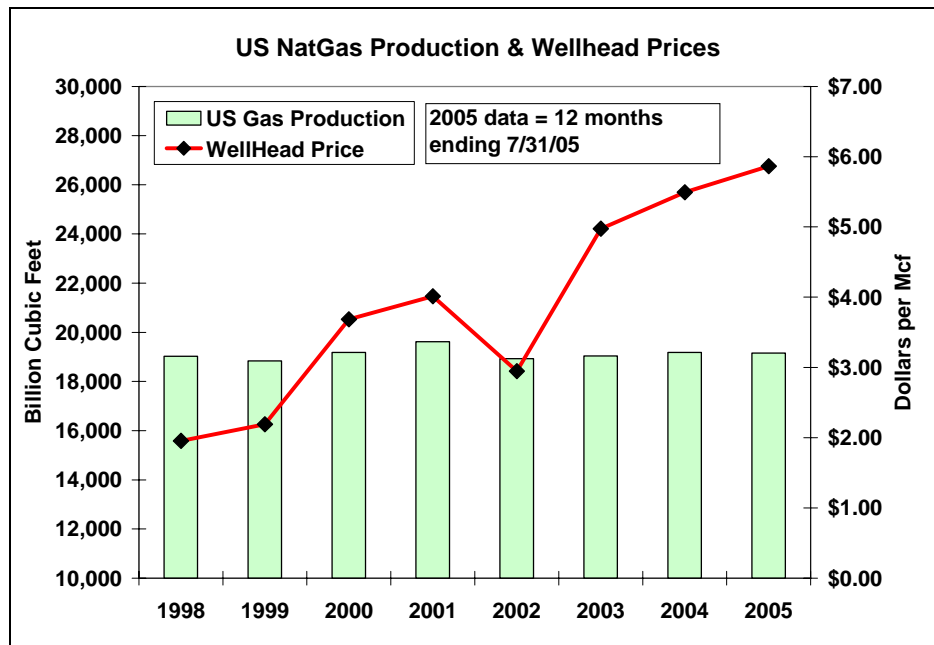


Figure 2 – US natural gas production and wellhead prices. Source = USEIA.

Clearly this energy source cannot be relied upon for long-term procurement. The construction of LNG terminals can create a false sense of security when in reality it will only make the state more susceptible to future supply disruptions. Instead the LNG terminals should be seen as a safety net or backup in the future. If we continue to rely on fossil fuels as primary energy sources, it is only a matter of time before those supplies are again constrained and prices spike causing economic shockwaves across the state.

Transportation energy presents a yet more difficult question because petroleum fuels are relied upon more heavily. For most there is no alternative to the local gas station. As prices continue to rise, alternative fuel sources such as ethanol and bio-diesel are becoming economically viable in a competitive marketplace. Ethanol blended gasoline and bio-diesel may provide California an opportunity to alleviate its dependence on foreign oil, but the potential for adverse air quality impacts should not be taken lightly. CARB's permeation study revealed increases in VOC emissions for vehicles operating on low blended ethanol gasoline. A U.S.-EPA analysis on bio-diesel also indicated increases in NOx emissions with the usage of B-20 in existing engines. NOx and VOCs directly contribute to ozone formation and heavy usage of E-10 or B-20 may potentially jeopardize the state's ability to comply with federal air quality health standards. The use of E-85 blended gasoline reflects an improved air quality scenario and policies should be pursued to utilize E-85 and prevent any backsliding on air quality. With respect to bio-diesel, the CEC should facilitate the bio-diesel industry's development of new additives to reduce increased NOx emissions.

The IEPR should encourage steps to utilize the estimated 200,000 flexible fuel vehicles (FFV) that are currently on the road in California. Reductions in petroleum demand can be achieved through mandates and incentives for E-85 infrastructure. At the same time California should return to its leadership role working to expand the auto industry's production of FFVs capable of running on E-85 and meeting the state's partial zero emission vehicle requirements. The state cannot wait for the federal government to increase Corporate Average Fuel Economy (CAFE) standards. By turning to alternative fuels, the state can take early action to decrease petroleum demand while also preparing for the future shift away from petroleum.

Coal Power

With Governor Schwarzenegger's new climate goals, it is difficult to justify the importation of power from new conventional coal-fired plants to supply California's increased need for electricity. CEERT agrees with the GHG emissions standards proposed in the draft IEPR. Additionally we feel that any new plant must be designed to readily accept carbon sequestration retrofits to address the threat of global warming. This will be an important way to reduce carbon emissions in the future.

We do not support the use of offsets to reach any emissions standards. Past experience has shown that offsets provide loopholes that will ultimately increase GHG and other toxic emissions. This view is elaborated in a letter submitted to these proceedings which is signed by CEERT, NRDC, UCS, TURN, Coalition for Clean Air, Sierra Club and Planning and Conservation League.

California is already supplied with conventional coal fired power from plants throughout the west. Given the Governor's new climate targets, California should be working to wean itself from coal power. Any coal sourced electricity that is taken should meet high environmental standards, without the use of offsets. The setting of such standards will drive technological development to meet these goals. California has a rich history of emissions standards which drive technological development, from stationary source emissions standards, to the revolutionary Pavley motor vehicle regulations. California's purchase power can encourage investment which will accelerate development to meet these standards. California's ratepayers, as the principal guarantors of any new power facility should only finance the cleanest technologies.

It is also important to put the use of coal-fired electricity in the proper perspective. This power source, like natural gas, should not be seen as a final solution to California's power demands. Rather it is a less than ideal near-term solution to the state's current supply constraints. In the long-term, like LNG, coal should be seen as an energy safety net for use in an emergency.

Conclusion

The use of renewable energy in place of more conventional fossil fueled power presents numerous societal benefits, including a reduction in public health threats, increased reliability in energy supplies, and creation of jobs and other economic benefits for the state's citizens. As the state imports more of our electricity we become more susceptible to events out of our control. It must be universally recognized that LNG terminals and coal are not a panacea, but merely a stopgap as the state pursues more viable long-term supplies. CEERT feels that the draft IEPR does recognize many of these issues and puts forth logical policy proposals to improve the state's energy supplies and infrastructure. However, we feel that the current high energy prices and supply constraints afford a unique opportunity to stimulate real action from the state's policy makers. A greater sense of urgency must be felt. The commission must use the IEPR to grab people's attention and work to generate less Megawords and more Megawatts.

CEERT Comments on draft IEPR Chapter 7, Natural Gas

Introduction

Even before the recent hurricanes disrupted natural gas production in the Gulf of Mexico, gas was trading in U.S. wholesale markets around \$10 per million BTU, 5 times the price a mere five or six years ago. The reason for this remarkable price increase is straightforward. North American gas supplies have remained virtually flat during this period, despite very active exploration and drilling activity in response to higher prices. Increased competition for these limited supplies due to expanding populations and economic activity, together with rising crude oil prices, have taken natural gas prices to their present levels.

The current supply/demand balance responsible for today's prices is projected by nearly all observers to continue for at least several years. Consequently, in the absence of a severe economic contraction, prices are projected to remain at present levels or to go even higher in the years ahead. Having increased 5-fold in about 6 years, the likelihood that gas prices will further double or even triple cannot be ignored. On Monday, October 3, average gas price for delivery over the next 12 months closed above \$12/MMBtu, even though the damage caused by the hurricanes is expected to be repaired within a few months and gas storage levels remain near the 5-year average.

California, together with the rest of North America, is in the midst of a natural gas crisis. While the recent hurricanes have exacerbated the problem in the short term, they are *not* responsible for the underlying long term gas supply situation. The most serious danger to California is not potential disruption in physical delivery of natural gas to the state, but rather the economic impact of runaway gas prices.

The natural gas section of the draft IEPR (DIEPR), Chapter 7, fails to communicate to the people of California a sense of this crisis and the impending danger. The discussion in Chapter 7 lacks a sense of urgency and fails to identify the measures that need to be taken immediately by the State to ameliorate the impact of natural gas prices.

CEERT recommends that Chapter 7 of the DIEPR be revised to better describe the current crisis situation and to include concrete recommendations to quickly decrease the use of natural gas in the state. In addition to substantially increased funding for energy conservation measures to reduce gas consumption, the currently glacial pace of renewable energy development for electric generation must be rapidly accelerated.

Projections from EIA are misleading and should not be used in the IEPR

Figure 16 in Chapter 7 (DIEPR p.107) illustrates future consumption of natural gas in the U.S. as projected by the U.S. Energy Information Administration. These projections are produced by USEIA's computer model, an equilibrium

model which assumes that natural gas prices reflect the marginal cost of natural gas production. However, “wellhead” prices paid to producers before the hurricanes further disrupted supplies were approximately double the marginal cost of production. The USEIA equilibrium assumption therefore is currently invalid, and has been for several years.

USEIA projects that the supply problems of the last 6 years are a merely a minor hiccup, that low prices will soon return, that somehow supplies and consumption will begin to increase. This view is not shared by most industry analysts. CEERT recommends that Figure 16 be removed from the DIEPR and replaced with independent projections made by Commission staff. At the very least, Figure 16 should include a prominent disclaimer underscoring the assumptions underlying the numbers, the Commission’s opinion of these numbers, and more likely alternative scenarios.

Standard equilibrium economic models such as USEIA’s assume that market prices cannot remain above the marginal cost of supply for long. According to the theory, prices higher than marginal production costs cannot be sustained because supplies will expand as producers are attracted by the potential profit that these prices provide. Unfortunately, the theory makes no accommodation to the realities of geology nor the time required for significant infrastructure improvements.

The current marginal cost of production is believed to be around \$3.50 - \$4.00 per MMBtu, corresponding to the cost to produce natural gas from shale, so-called “tight sands”, and coal seams. However, the “wellhead” price paid to producers is about twice this marginal cost. The difference between wellhead prices and the marginal cost of production is referred to by economists as “scarcity rents”, the additional amount that consumers are willing to pay for gas supplies, however grudgingly.

The incongruities of the USEIA projections for 2005 and beyond can be seen in Figure 1ⁱ, which compares the USEIA gas price and supply projections from the same model that produced Figure 16.

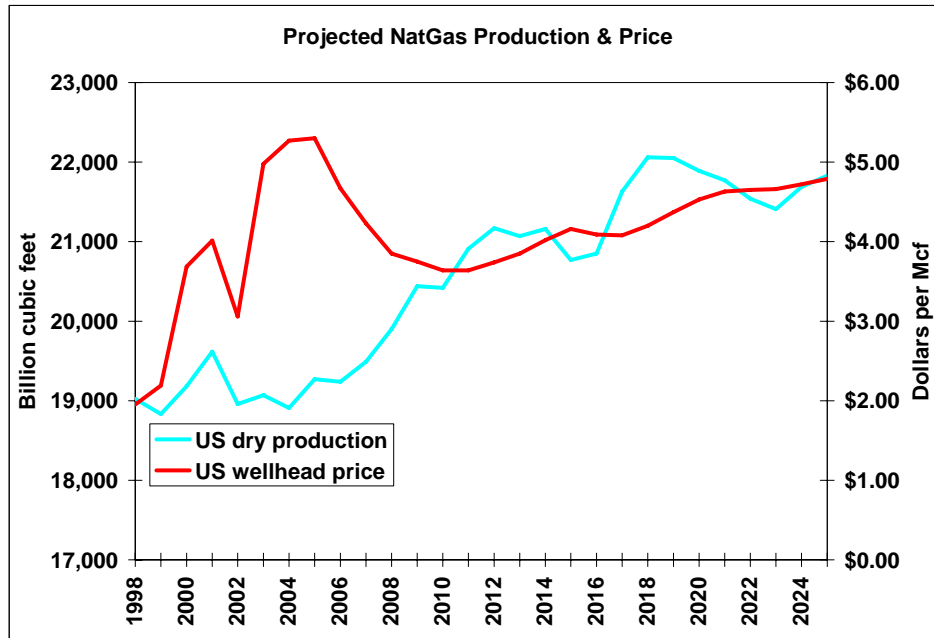


Figure 1 – Historical data and projections from USEIA Annual Energy Outlook 2005

EIA appears to ignore the fact that high prices have failed to increase production in this century and inexplicably forecasts that U.S. gas production will *increase* after 2006 despite *falling* wellhead prices. Model assumptions that lead to such an outcome are simply not credible. A more reasonable scenario for the purposes of the IEPR would be that North American natural gas production will remain flat to declining. Moreover, if and when sufficient liquefied natural gas (LNG) is imported to significantly reduce producer prices, the possibility that U.S. production will decline must be considered.

Gas supply limitations are due to geology, not weather or lack of surface infrastructure

The extent of the disconnect between historical wellhead prices and natural gas production can be seen in Figure .

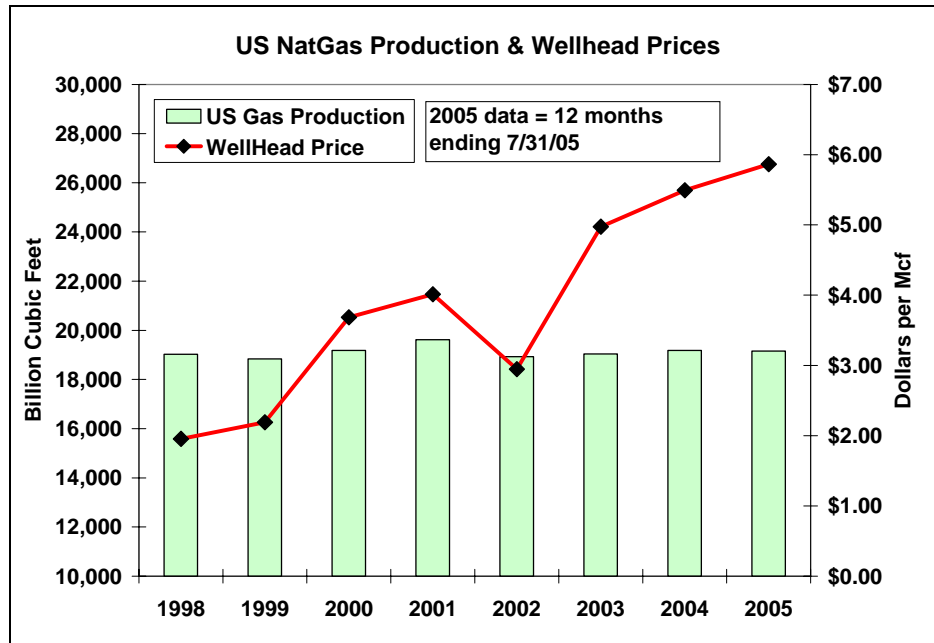


Figure 2 – US natural gas production and wellhead prices. Source = USEIA.

The inability of the industry to increase production over the last 8 years is not for lack of investment in exploration and drilling activity. The number of gas wells drilled each year has followed wellhead prices remarkably well, as shown in Figure . The problem is that large and easily reached deposits of natural gas on land have been depleted, and the major offshore fields also are being drawn down rapidly. Most of the gas wells currently being developed are in regions with dispersed and difficult gas-bearing strata such as shale, highly compacted “tight” sands, and coal seams.

For these reasons, many analysts believe that production of natural gas in the U.S. outside Alaska will begin a permanent decline, as did the production of crude oil in 1970. Whether the Commission agrees with this conclusion or not, the IEPR should include a discussion of the fundamental changes taking place in the U.S. gas production industry and the likely impact of these changes on consumers. Any pretense that the fundamental causes of high heating bills are disruptions due to recent storms and lack of pipeline or storage infrastructure is false and misleading.

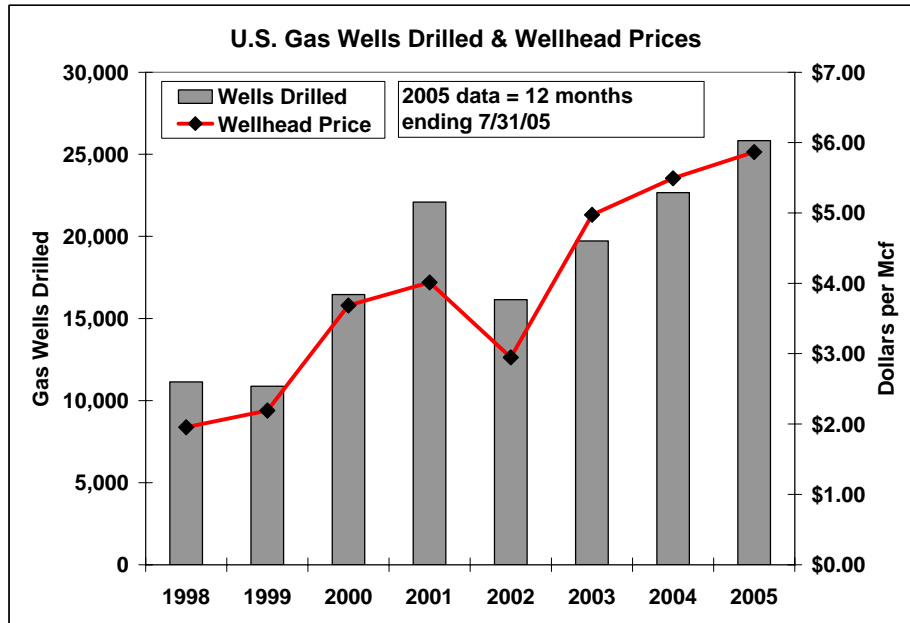


Figure 3 – Gas wells drilled annually and wellhead prices. Source = USEIA.

Increasing consumption is *not* the problem

The media is fond of blaming high gas prices on increasing, or even “burgeoning” consumption.

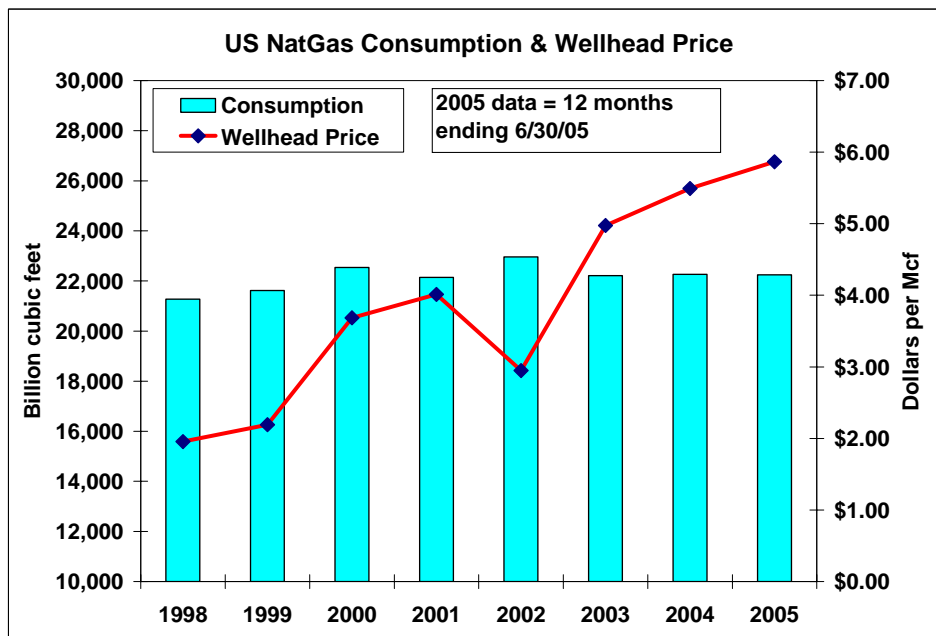


Figure 4 – U.S. natural gas consumption and wellhead prices. Source = USEIA.

Clearly, this is false, as Figure 4 shows. Consumption cannot increase without increasing supplies – you can’t burn what you don’t have. The IEPR should be

careful not to imply that somehow the cost of natural gas to consumers is due to increasing consumption.ⁱⁱ

It is also widely but erroneously believed that high prices are due to rapidly expanding use of natural gas for electric generation, since many new gas-fired power plants have been built in the last few years. Industrial consumer groups maintain that they are being hurt more than others by high prices. Neither of these claims is supported by the data, however, as Figure 5 shows. Consumption has remained virtually flat in all sectors since 2001, including electric generation.ⁱⁱⁱ Industrial consumption has decreased only marginally.

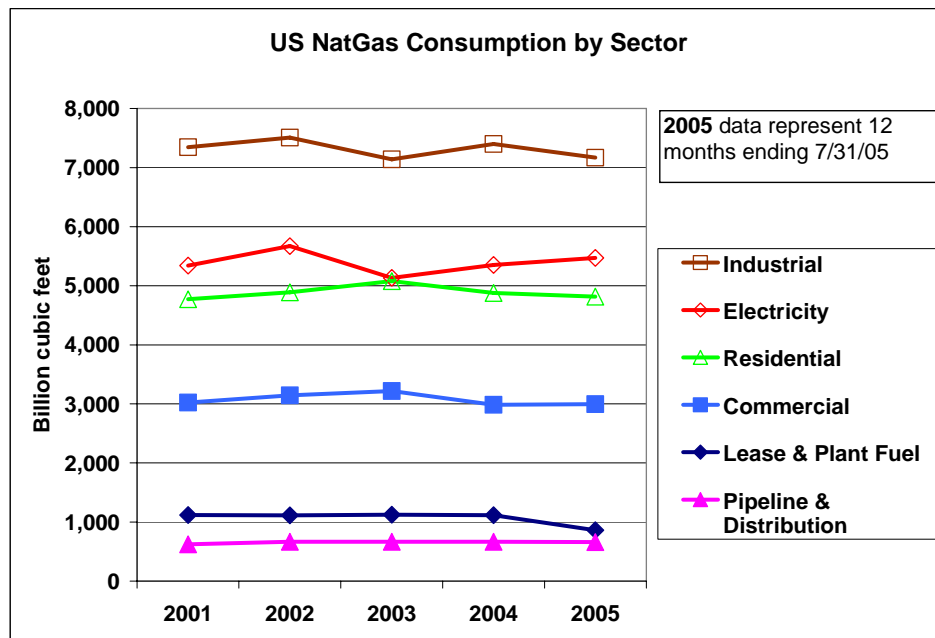


Figure 5 – U.S. natural gas consumption by sector. Source = USEIA.

Figure 4 also clearly shows that consumption tends to increase when prices are low and decrease when prices are high, as expected.^{iv} One might be tempted to conclude from Figure 4 that high gas prices since 2000 are responsible for the lack of increase in consumption, but that would be incorrect. Consumption has been limited by supply, not by price. Gas price increases have been due to the addition of scarcity rents, as discussed earlier.

A more reasonable conclusion to be drawn from the above charts is that consumption will continue to remain flat or decline and prices will continue to rise until and unless North American gas supplies increase or consumption decreases. The Commission's expectation that gas consumption will *increase* in the coming years (DIEPR p.108) can only be supported if the Commission expects North American gas supplies to expand. If that is the Commission's position, it should be explained and supported in the IEPR.

Will LNG solve the problem?

US total supplies projected by USEIA as shown in Figure 16 of the DIEPR are reproduced below in Figure 6

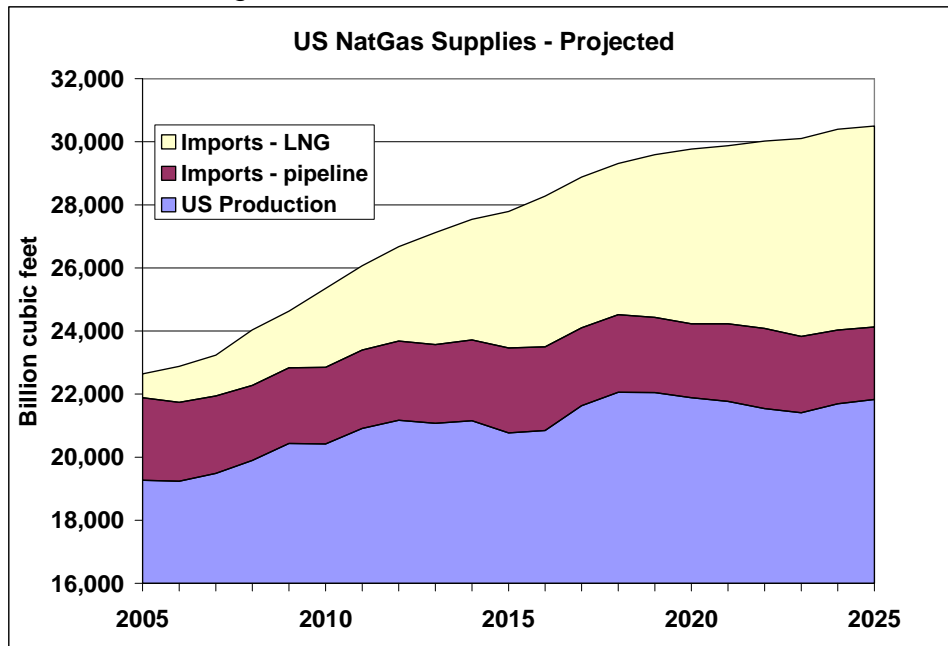


Figure 6 – U.S. natural gas supplies as projected by USEIA in AEO 2005.

As discussed above, the projected 8% increase in U.S. production by 2015 seems unlikely. Whether Alaskan gas will be available after 2015, as apparently indicated in Figure 6 is unclear. The assumption that imports of gas from Canada via pipeline will remain constant is perhaps not a bad assumption. But Figure 6 dramatically shows that EIA's low price/high consumption scenario hinges on the assumption that massive amounts of LNG will be imported into the U.S. in the coming years. Furthermore, the figure shows that EIA assumes that U.S. and Canadian production will not decrease despite the competition from (presumably) lower priced LNG.

CEERT cannot project the rate at which LNG imports into North American will expand. Currently, countries with surplus natural gas are in the process of expanding their LNG export facilities, including producers in Africa, South America, Middle East, Australia, and the former Soviet Union. However, several factors which indicate that imported LNG may not turn out to be the panacea that USEIA evidently believes.

Global competition for LNG may be fierce, since North America, Europe and Asia are already net importers of gas and will be aggressive in the global market place. The marginal cost of LNG delivered to North America is currently estimated at about \$4/MMBtu, but the delivered price could be significantly higher if LNG supplies do not expand rapidly. Moreover, LNG importers may remain price-takers as they are today, and not become price-setters as many assume. The DIEPR should include a discussion of these possibilities.

USEIA projections for well-head prices and LNG imports shown in Figure 1 and Figure 6 indicate the agency's belief that LNG imports of 2,500 billion cubic feet per year in 2010 would drive U.S. well-head prices down to \$3.64/MMBtu (in 2003 dollars.) However, the agency also assumes that U.S. domestic production will simultaneously increase by 1,000 bcf/yr, which seems highly unlikely, as noted above. As Figure shows, when wellhead prices were last around \$3.64, drilling rates were about 40% lower than they are at today's prices. Moreover, by 2010, reserves in the Gulf of Mexico will have been further depleted, making production from this region more difficult. The impact of large amounts of LNG on domestic production cannot be ignored.

A second factor is that the price of natural gas is related to the price of crude oil for reasons that are not well understood. There are good indications^v that global oil production will reach a peak and begin to decline within the next decade or so. Some observers believe that the recent increase in global crude oil prices is symptomatic of larger increases in the near future due to increasing depletion of crude oil resources. If this scenario is in fact realized, higher oil prices may raise the global price of LNG.

Figure 7 shows how closely U.S. natural gas prices have followed crude oil on an energy basis in the last two years. When these two prices are approximately equal, consumers which have the ability to switch between the two fuels can choose the least expensive. Such "fuel switching" serves to tie prices together when they are about the same. In the last two years, however, excepting the periods following Hurricane Ivan in fall 2004 and Katrina and Rita in 2005, crude oil prices on an energy basis have been consistently about \$2/MMBtu higher than gas prices. The reason for this relationship in the absence of fuel switching possibilities is not well understood.

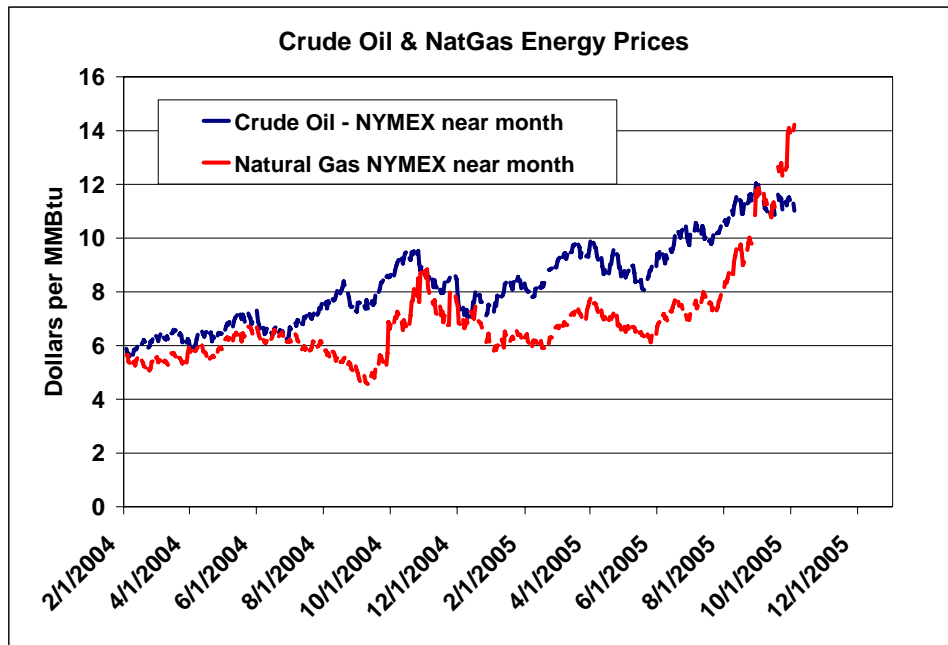


Figure 7 – Crude oil and natural gas prices, NYMEX near month. Source = Bloomberg News.

It remains to be seen whether global crude oil prices, should they increase as some expect, will provide support for global LNG prices as this market expands. If so, the global price of LNG could be well above the marginal cost of production in the future. This possibility cannot be ruled out.

In summary, it seems highly likely that significant amounts of LNG will be imported into the U.S. in the coming years. However, the rate at which imports will expand and their impact on prices remains uncertain.

Recommendations for action

California, together with the rest of North America, finds itself in the midst of a natural gas crisis. Physical disruptions of supplies to California, while worrisome, are not the major threat; instead, current gas prices threaten to undermine the State's economy and potential price increases could be disastrous. California now is forced to spend more than \$20 billion annually on natural gas, and that cost could easily increase several-fold. However, it is not enough merely to describe the problem – people rightfully want to know what their government intends to do about the problem, and the IEPR should tell them.

There is little California can do about the price of natural gas since gas markets in the U.S. and Canada are highly integrated. Facilitating the construction of environmentally sensitive LNG receiving terminals in the state may improve the overall gas supply situation but any gas imported through California immediately becomes part of the larger North American supply.

However, California can reduce the *cost* of natural gas by immediately investing in technologies that reduce the state's consumption. Since 50% of the gas burned in California is used to generate electricity, that sector is the obvious place to begin. The Public Utilities Commission has announced an expansion of the jurisdictional utilities' energy efficiency programs. However, much more needs to be done. The IEPR should recommend public investments sufficient to replace within a few years virtually all of the old, inefficient equipment now using electricity or natural gas through aggressive early retirement programs.

California's "loading order" sets a higher priority on investment in cost-effective energy efficiency programs. Nevertheless, utility programs target only a fraction of the potential savings every year, and these programs should be accelerated. Moreover, there is no state oversight of publicly owned utility programs. The IEPR should insist that all of the state's electricity and natural gas customers be equally served by the accelerated efficiency programs.

Moreover, the cost-effectiveness tests used by the CPUC do not reflect the current and likely future price of natural gas. The IEPR should establish a realistic benchmark gas price that reflects the current crisis situation to be used by all utilities in evaluating efficiency programs.

The second major opportunity to reduce California's consumption of gas is to accelerate the rate at which the state harnesses its ample renewable energy resources. In 2001 California adopted a "renewable portfolio standard" (RPS) which, if implemented, would ensure that 20% of California's electric energy would be generated from renewable energy resources by 2017. That date has since been moved to 2010. There are now proposals to further increase the target to 33% by 2020.

Unfortunately, progress toward meeting even the lesser targets has been excruciatingly slow and has done little to alleviate the current burdensome gas costs. There has been a surfeit of renewable *Megawords* and a dearth of renewable *Megawatts*.

If and when electricity from renewable energy resource areas comes into the grid, that electricity will displace energy generated from natural gas. Harnessing the Tehachapi wind resources and the Imperial Valley geothermal resources would provide twice as much energy as the two nuclear units at Diablo Canyon and displace gas now costing California in excess of \$2.5 billion annually, even at last summer's gas prices.

The IEPR should recommend a crash program designed to bring both Tehachapi wind and Imperial geothermal energy into the grid by the end of 2006, or shortly thereafter, as an appropriate response to the natural gas crisis. As much additional renewable energy as possible from other areas should be included.

CEERT fully understands the difficulty of accelerating the state's acquisition of renewable energy. Our organization has been thoroughly engaged at the CPUC for many years to promote the signing of contracts for renewable power by the utilities and to plan the transmission upgrades that would be required. The glacial pace of progress should not be tolerated in the current crisis situation – literally billions of dollars are being wasted every year on unnecessary purchases of gas while the stakeholders squabble over terms and conditions.

As with the energy efficiency programs, the emergency renewable energy acquisition program require participation by all electric load-serving entities. The benchmark gas price used for energy efficiency cost-effectiveness tests also should be used to determine which renewable resources qualify for the emergency renewable program.

Conclusion

CEERT's recommendations for improving Chapter 7 of the DIEPR fall into two categories. The people of California deserve an accurate description of the current natural gas crisis situation and realistic projections for the future, and CEERT provides suggestions for changes intended to accomplish this. Secondly, the IEPR should make specific recommendations for actions to reduce the cost of natural gas to California consumers, and CEERT provides suggestions for these actions.

CEERT Recommendations – describing the current natural gas crisis

1. Include a description of industry developments during the last 5 – 10 years, including a discussion of North American resource depletion and geological challenges of remaining resources, stagnant production despite active exploration and drilling, stagnant consumption, and increasing prices.
2. Any implication that the recent hurricanes are responsible for the natural gas crisis should be eliminated. Language should be included to clarify to readers that the storms have exacerbated the situation but are not the cause of the crisis.
3. Remove all references to projections made with equilibrium models and include Commission projections that reflect mainstream independent industry analyses. If equilibrium model projections, either from USEIA or Commission staff *must* be included, they should include a disclaimer highlighting the failure of these models to accurately describe past events and alternative independent analyses.
4. The distinction between future “demand” and “consumption” should be clarified. If the IEPR concludes that natural gas consumption will increase in the future, a rational explanation of where the additional gas will come from must be included.
5. The discussion of LNG should include an overview of global competition for these resources and potential consequences of increasing imports. In particular, the discussion should cover the likelihood that increasing LNG imports will not reduce prices, the potential impact on conventional North American production if prices do decline, and the overall impact on North American gas supplies.
6. Chapter 7 should conclude that there is a high probability that natural gas prices will remain in the current range for at least several years into the future. It should also conclude that the price of natural gas may well exceed current levels in future years.

CEERT Recommendations – measures to reduce the cost of gas in California

1. Chapter 7 should make it clear that there is little California can do to reduce the *price* of natural gas, but that the state can undertake investments that can reduce the *cost* of gas to California consumers.
2. The IEPR should recommend public investments sufficient to replace within a few years virtually all of the old, inefficient equipment now using electricity or natural gas through aggressive early retirement programs.
3. The IEPR should insist that all of the state’s electricity and natural gas customers be equally served by the accelerated efficiency programs.
4. The IEPR should establish a realistic benchmark gas price that reflects the current crisis situation to be used by all utilities in evaluating efficiency and alternative energy programs.

5. The IEPR should recommend a crash program designed to bring both Tehachapi wind and Imperial geothermal energy into the grid by the end of 2006, or shortly thereafter, as an appropriate response to the natural gas crisis. As much additional renewable energy as possible from other areas should be included

ⁱ Data for this chart are from Annual Energy Outlook 2005, USEIA. Note that current wellhead prices are considerably higher than those forecast by EIA early this year. In addition, the projected small increase in production for 2005 over 2004 is unlikely to materialize – even before hurricanes Katrina and Rita, production during the first 7 months of this year is virtually the same as for the corresponding period in 2004.

ⁱⁱ Chapter 7 appears to use the terms “demand”, “consumption” and “use” interchangeable, which may cause some confusion. As discussed below, “demand” is sometimes used to mean consumption that would occur if prices remain constant, although economists would disagree. For the purposes of Chapter 7, consistent use of the term “consumption” is recommended.

ⁱⁱⁱ Data in Figure 5 begin in 2001, the first year that USEIA combined all gas used for electric generation into a single sector. Previously, non-utility generators were included in the industrial sector.

^{iv} It should be noted, however, that on a percentage basis, the changes in consumption are much smaller than the changes in price.

^v See Risky Diet 2005: Global Energy Resource Adequacy, Rich Ferguson, PhD, CEERT, June 2005, available at www.ceert.org.